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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,764	01/23/2004	Kenneth M. Sprouse	7784-000660	7550

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EXAMINER	
KIM, TAE JUN	
ART UNIT	**PAPER NUMBER**
3746	

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/763,764	SPROUSE ET AL.	
	Examiner	Art Unit	
	Ted Kim	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *10-16* is/are withdrawn from consideration.

5)☒ Claim(s) *1-5, 7-9, 17-24* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/03/04 1/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 10-16 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/20/2005.

2. Applicant's election with traverse of group I in the reply filed on 10/20/2005 is acknowledged. The traversal is on the following ground(s)

> The Applicant respectfully requests consideration and withdrawal or modification of the initial restriction requirement because the Applicant submits that the Examiner has not established a prima facie showing that the claimed inventions are independent and/or that there is a serious burden on the Examiner. The Examiner can only show the claimed inventions are independent by providing an appropriate explanation of separate classification, separate status in the art, or a different field of search as defined in MPEP § 808.02. Such a showing has not be made by simply indicating that various groups of claims can be found in different classifications.

This is not found persuasive because applicant has apparently misapplied the standards of the MPEP where the claims must be independent **OR** patentably distinct. Applicant's remarks fail to consider the alterative of "patentably distinct" of which the claim groups. Moreover, the examiner has given specifics beyond the differing classifications as to the reasoning of why the groups are patentably distinct:

"In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination requires a fan powered by the expanding gasses, the fuel of the combination does not have to be a pilot fuel but could be a main fuel. The subcombination has separate utility such as in a general combustion system, i.e. non-power plant type." In addition, the pilot of claim 10 does not require a pilot oxidizer, hence, the subcombination can be operated without a pilot oxidizer, contrary to the requirements of claims 1, 17.

The requirement is still deemed proper and is therefore made FINAL.

Specification

3. An examination of this application reveals that it includes terminology which is different from that which is generally accepted in the art. For example: turbine "fan" is used in a manner in **both the claims and specification** completely opposite to the normal definition of turbine or "fan." A fan requires external power to move fluid whereas the turbine extracts the power from the fluid. It is recommended that applicant replace "turbine fan" with –turbine—or – turbine blades—as appropriate.

Claim Objections

4. Claims 1-9 have objected to because of the above informalities. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. "the detonation wave" lacks proper antecedent basis. This term does appear in claim 4.
- Claim 16, line 8, "the main combustion chamber" is unclear as to which main combustor is referenced here. This should be replaced by –the at last one of the main combustion chambers—for clarity and consistency.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 8, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smits (2,811,676). Smits teaches a power production system, comprising: a combustion oxidizer source (inherent) to provide a selected volume of a combustion oxidizer; a combustion fuel source (inherent) to provide a selected volume of a combustion fuel; a plurality of a combustor 1 to combust the selected volume of the fuel and the oxidizer, wherein combusting the selected volume of the fuel and the oxidizer form expanding gases; a turbine/fan (col. 1, lines 20-24) powered by the expanding gasses; an ignition system to provide substantially simultaneous ignition of each of the plurality of the

combustors (col. 3, lines 10+; col. 4, lines 11+); wherein the plurality of the combustors each include a oxidizer pathway (inherent) that provides a path to provide the oxidizer to main combustion chamber in each of the plurality of the combustors; wherein the selected volume of the combustion fuel is mixed with the selected volume of the oxidizer flowing to the oxidizer pathway to be combusted in the main combustion chamber; an igniter with spark source 2 to ignite a selected volume of an oxidizer and a fuel in the ignition system.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-3, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jubb et al (2,722,800), and further in view of Smits (2,811,676). Jubb et al teach a power production system, comprising: a combustion oxidizer source 11 to provide a selected volume of a combustion oxidizer; a combustion fuel source 20 to provide a selected volume of a combustion fuel; a plurality of a combustor 12 to combust the selected volume of the fuel and the oxidizer, wherein combusting the selected volume of the fuel and the oxidizer form expanding gases; a turbine/fan 13 powered by the expanding

gasses; an ignition system (col. 3, lines 32+) where the pilot fuel injectors are ignited to ignite the main fuel injectors. Jubb et al do not teach substantially simultaneous ignition of each of the plurality of the combustors with a spark source. Smits teaches a power production system, comprising: a combustion oxidizer source (inherent) to provide a selected volume of a combustion oxidizer; a combustion fuel source (inherent) to provide a selected volume of a combustion fuel; a plurality of a combustor 1 to combust the selected volume of the fuel and the oxidizer, wherein combusting the selected volume of the fuel and the oxidizer form expanding gases; a turbine/fan (col. 1, lines 20-24) powered by the expanding gasses; an ignition system to provide substantially simultaneous ignition of each of the plurality of the combustors (col. 3, lines 10+; col. 4, lines 11+); wherein the plurality of the combustors each include a oxidizer pathway (inherent) that provides a path to provide the oxidizer to main combustion chamber in each of the plurality of the combustors; wherein the selected volume of the combustion fuel is mixed with the selected volume of the oxidizer flowing to the oxidizer pathway to be combusted in the main combustion chamber; an igniter with spark source 2 to ignite a selected volume of an oxidizer and a fuel in the ignition system. It would have been obvious to one of ordinary skill in the art to ignite the pilots substantially simultaneously, as taught by Smits, as a well known method of ignition used in the art.

10. Claims 1-5, 7-9, 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (3,009,321) in view of Gemmen et al (5,791,889) and/or Winfree et al

(5,937,635). Jones et al teach a power production system, comprising: a combustion oxidizer source (air in) to provide a selected volume of a combustion oxidizer; a combustion fuel source (fuel in) to provide a selected volume of a combustion fuel; a plurality of a combustor 12 to combust the selected volume of the fuel and the oxidizer, wherein combusting the selected volume of the fuel and the oxidizer form expanding gases; a turbine fan (turbo jets col. 1, lines 11+) powered by the expanding gasses; an ignition system to provide substantially simultaneous ignition of each of the plurality of the combustors (col. 2, lines 41-46); wherein the plurality of the combustors each include a oxidizer pathway that provides a path to provide the oxidizer to main combustion chamber in each of the plurality of the combustors; wherein the selected volume of the combustion fuel is mixed with the selected volume of the oxidizer flowing to the oxidizer pathway to be combusted in the main combustion chamber; wherein said ignition system includes a pilot 22 that is able to combust the selected volume of the combustion fuel in the selected volume of the combustion oxidizer; said ignition system includes a combustion wave chamber in which a selected volume of an ignition oxidizer in a selected volume of an ignition fuel is combusted to burn the pilot fuel 32 and air. The ignition system uses a pilot system but is not a combustion wave system. Gemmen et al teach a combustion wave system where the pilot fuel 26 is controlled 26 to form combustion waves (col. 7, lines 56+) which thereby reduce the amplitude and frequency of the main combustion oscillations to prevent structural damage and/or lowering of the combustion efficiency (col. 8, lines 4+). It would have been obvious to one of ordinary

skill in the art to employ a combustion wave system for the pilot burners in order to thereby reduces the amplitude and frequency of the main combustion oscillations to prevent structural damage and/or lowering of the combustion efficiency. Winfree et al a detonation ignition system 39 where the detonation ignition tubes 39 with pilot oxygen and pilot fuel and spark igniters 61 serve to ignite combustion in 15 and advantages of using a pulse detonation ignition system include reduced weight, and excellent ignition capability (col. 4, lines 33-38). It would have been obvious to one of ordinary skill in the art to employ detonation ignition tubes for the pilots of Jones et al, in order to enhance the ignitability and/or reduce the weight. As for the use of hydrogen as the fuel, hydrogen is a well known fuel for detonation systems (see e.g. col. 4, lines 35+ and col. 3, lines 72+ of Desty et al 3,674,409). It would have been obvious to one of ordinary skill in the art to employ hydrogen as the fuel, as a highly advantageous fuel for detonation that is conventionally used in the art.

Allowable Subject Matter

11. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The

Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 571-273-8300 for Regular faxes and 571-273-8300 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at http://www.uspto.gov/main/patents.htm

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